REPORT

BADAKHSHAN MISSION

AUGUST 12 - SEPTEMBER 2 1992

Bjørn Rakstang, NAC
September 9, 1992

CONTENT:

INTRODUCTION.

The background for this mission was surveying reported flood and erosion damages in certain parts of Badakhshan, and to assess the possibilities for a flood/erosion control program in Khumbuk in upper Keshim valley. This involves all aspects from the assessment of the problem to possible solution, assessment of present NAC staff in the area and look at need for training. All this was attempted done, although any solution (project stategy) will have to be discussed later together with the Program Coordinator and other Badakhshan based staff and with relevant instances in the main office in Peshawar. Only some thoughts will be presented here on that issue.

Other tasks were to record other forestry/reforestation activities in the province, and possibly to make a similar assessment in Yaftal, north of Faizabad, from where big flood and erosion damages also has been recorded.

1. KHUMBUK

1.1. SITUATION

Both in Per Hornfelts report from summer 1991 and John Haywards from later the same year it is mentioned severe flood damages and erosion damages in different parts of Badakhshan. Especially last year after the February earthquake, but it is claimed that the damages has increased gradually over the past 20 years.

Khumbuk, in the upper part of Keshim valley is among the most badly affected areas, and the area commander, Maulawi Jameel, along with other people in the area, are highly concerned about the problem. This area was visited for assessment.

The situation this year appears to be even worse than last year. Local people said that last year 40 % of the cultivated land was affected, while it has increased to 70 % this yeas. Although it is difficult to give an exact figure like that, it is obvious that there has been severe flood and erosion over the last few years. It is not clear how big the damages were before the two last years, but it is reason to believe that there always has been flood problems here to some extend. There can be no doubt that the flood problems have increased, and that the big erosion of soil in the hills possibly is a rather new problem.

The result to this is that irrigated as well as rainfed

agriculture land and fruit orchards are temporarly or permanently set out of production, houses are damaged and destroyed and roads blocked. It is not clear to which extend this has forced people to leave the area, some seasonal migration to find work has been going on for many years, but it is obvious that this ultimately will be the result if nothing is done to solve these problems.

1.2. FINDINGS

1.2.1. Excursions

Darrah e Kalon.

This is where the biggest damages were found. A small village in the valley bottom was totally destroyed by the flood going through it, damaging houses and leaving a thick layer of mud and stones, now hard as concrete, in the village and over 15 - 20 jerib of agriculture land and fruit orchards. Apparently the first big flood came last year during spring, followed by a bigger one this year killing three people.

Walking into the hillsides above the village it became obvious that much of the hillsides also were covered with a layer of mud. Rills into this layer and into the underlaying soil were plentiful. It was quite visible that this mud mostly came from rainfed agriculture land (lalmi) found all over the steep hillsides up to the top of the hills. There was a deep gully, 3-6 m deep and 2-5 m wide going all the way from the top of the hill down to and through the village, and others were under development. There was no water in the gully now. It was quite shocking to walk around here and look at the big damages, and the seemingly very difficult task of trying to restore this part of the valley.

Dashtak.

Also here floods have set agriculture land and fruit tree orchards out of production in the lower part, about 10 jeribs, the flood coming down a side valley. This stream has water all year.

Walking up this valley it became apparent that there were only little damage to be seen in the hills. The only visible damages was on the lalmi land in the hills. But at far less extend than in Darrah e Kalon.

Afghan Darrah.

Many people claimed that the hills used to be covered by conifer, almond and pistacia forests from the valley bottom to the top. This is now completely gone, and to see how it can look, a trip to the upper valley of Afghan Darrah vas done. Here we found conifer (Cypress species) forests with the occational almond tree. They were also decimated, but young seedlings grew vigorously. It seems to be no problem with grazing domestic animals.

It is obvious that these forests are under great pressure. The wood is preferred for building materials and firewood. These forests are protecting against erosion, preserving the ecoclimate on the climatic border of cultivation as well as act as a source of valuable wood. Therefore this forest should be utilized very carefully.
It was apparent that there was far less erosion and floods in this area. This might have many reasons, but what people claim is that they did not cultivate the steep valley sides to avoid these damages.

1.2.2. Talks

During our stay in Khumbuk we had several meetings and more informal talks with various people about the problem and a possible involvement from the committee, of which can be mentioned:
- Brief meeting before going to Khumbuk with Arian Poor, Amir of Badakhshan, Tadber Khan, Amir of Keshim and Maulawi Jameel, Commander of Khumbuk,
- Maulawi Jameel, commander of Khumbuk, in Khumbuk,
- Representant of Haji Daulat, Raiz of Khumbuk,
- Abdul Hanon, Headmaster Khumbuk Middle School,
- Fazl Khoda, Site supervisor NAC, Khumbuk,
- A. Qadeem, A. Fatah, Gul Ahmad, Fieldworkers NAC Badakhshan,
- Various local people briefly.

From these talks this summary can be made:
The Amirs and Maulawi Jameel expressed concern about the problem, and a whish that NAC would help doing something about it. Maulawi Jameel is known to be very concerned about it, and we had a longer talk about at the end of the mission about our findings and our thoughts about it. He showed great interest but also concern about the difficulty of the task. (This is discussed more under 1.3. Conclusions).
The representative of the Raiz also expressed great concern.
Talking to different people it ultimately became apparent that these problems quite recently had increased drastically. Other things that had increased rapidly during the same time (Jehad) were the number of domestic grazing animals and the extend of the lalmi farming in the hills. Because of general poverty in the area the intesity of the hillside cultivation also increased, sone does not rotate the crops in the fields at all from one year to te next. Most of the rain comes from the end of March through well into June (Amal, Saur and into Jausa). This is also the time of the flood problems. Water level in the river increases and erodes the river banks. And down hillsides gullies are made, often followed ba flash floods.
There seemed to be a good understanding of the reasons for the problem. But we could feel that they had problems accepting it and what hat to be done to solve it. This is understandable since it is a matter of their livelyhood.

1.3. CONCLUSIONS

It is obvious that there has been unusually big floods and erosion damages during the last few years. The reasons might be many, but this is what we see as the most important ones (mainly the same as scetched out in J. Haywards report of last year):

A. Over a long periode of time the forest covering the valley sides has disappeared due to cutting for construction wood, firewood, fodder and to make room for cultivation. This has caused a change in the soil property, since roots, shade and litterfall have a big influence on the microorganism activity and thereby the soil formation. A soil like this will have poor structure and low contend of organic material, and a low ability to infiltrate water. This together with the loss of physical cover from rain by the canopy, and the soil binding role of the roots, has made the hills more susceptible to erosion and landslides.

B. For reasons not entirely clear there has been an explosive increase in the area under lalmi cultivation. One reason is of course to produce more food in an area with sparse agriculture land, but on the other hand it seems to be some understanding in the area about the problems this may cause. Anyway this is a fact, and the cultivation of the single field also seems to have been intensified.

It is very easy to see that this has a great effect on the erosion. Almost all the lalmi fields in the steeper parts have clear signs of erosion. Rills and gullies where the water have run, and the grassland below it is often covered in a layer of silty-clayey material, that obviously comes mostly from the cultivated land.
The reason is that wheat is sown in autumn, and has just begun to germinate when the rains comes. This leaves the field without almost any vegetation cover in the crucial time, and the water can run freely and carry the unprotected soil away.

C. A not so visible reason is the heavy grazing pressure from the increased number of domestic animals. For most of the year they are out of the area, but during autumn they move down from the high mountain pastures to graze in these valley sides before the snow comes. Doing so there is three important factors to consider:

- Removal of the vegetation cover. Some of these animals actually take the root up with the grass.
- Destruction of the turf, the layer of organic material including thightly woven roots that protects the underlying soil. It is known that goats, sheep and cattle sometimes step through this turf.
- Compacting of the soil. All these animals in the hills will cause a compacting of the soil that reduces the infiltration

capacity of the soil. So when rain or meltwater comes down the slopes less of it will be infiltrated into the soil. There is little evidence of this, except for in Dashtak where there is not much erosion in the range but where there has been big floods lower down. It is possibly caused by faster runoff.

These factors will all lead to increased runoff at a higher speed, that in its turn will increase the erosion from the lalmi land and cause floods lower down.
These are the classical reasons given for problems like this also in other areas, and few places are they so obvious as here. There might be other reasons, but these are the most important ones.

1.4. RECOMMENDATIONS

One sad fact that has to be realized is that if nothing is changed in the pattern of grazing and lalmi farming, there will be much more damage in this valley by floods and erosion. Darrah e Kalon may just be the beginning of a disaster that over a few years may destroy the living conditions in Khumbuk valley.
However there is possibilities to change this gloomy prospect, and maybe what is needed is a bit of involvement from outside, a push forward. It will need a demanding approach but i think it is possible for the NAC to get involved since the committee already is heavily involved in Keshim. This is also what the people in the area wants.

It will not necessarily be very capital intencive, but rather demand more on the planning side. The approach must be multisectoral, since it would not be enough just to start planting trees in the hills. The damage is already done, the water will continue to follow the rills and gullies down if nothing actively is done to prevent it. So it has to be combined with physical constructions like checkdams to reduce the speed of the water, maybe combined with reservoir building for storing of water in the hills for the dry season, canals for leading water out into the hills for tree plantations and dispersal of the runoff water.
The approach must be very flexible, and applied carefully to the different sites which may have quite different conditions.

Another important factor is that grazing and lalmi farming in these steep hills have to be limited, and we must provide a alternative for the farmers. How this is to be done is not obvious, but it should be possible to find better fodder as grass and edible leaves and branches from multi purpose trees. Another thing to look into is improved lalmi wheat varieties.
To find this we have to do research here in Peshawar and in the area, and start field trials for multipurpose trees that can supply both wood and fodder in addition to erosion prevention and firewood supply and for improved lalmi wheat varieties.

Also trials in animal nutrition and health would be appropriate. This can in the long run make a sustainable agriculture possible.

The problem is how to help the people now. It could be through other activities like labour intensive projects to provide local jobs alongside extention on forestry and establish or strengthen local structures to control the utilization of the rangeland. To find fastgrowing multi purpose tree species and start nurseries and plantations immediately could be a good mean as well.

This demands good planning and a big social involvement in the area, which is possible because of the Field Office in Keshim and a possible Sub Office in Khumbuk. It also leads to a good starting point for possible further involvement in income generation projects, women projects, etc. This can easily be justified by the fact that Khumbuk is among the poorest of areas in Badakhshan.

A crucial condition is the attitude of the authorities and the population of Khumbuk. Since this in the first place will not be a capital intencive project and the results show slowly, this goodwill and cooperation is not so obvious. We have the support by the authorities, but we do not know what is the interest of the people and to what extend the authorities have control of their people. It can be illustrated like this: if one farmer do not agree and sends his animals into the hills where there has been planted trees, all this work is for no use, since the animals will eat the seedlings. Therefore it is very important to cooperate with the people in the implementing of this project. If there is doubt about if it is possible to get the necessary agreements, then it is better not to start the project.

It demands a very careful planning stage.

A plan for action upto the end of the year:

- Establish a nursery in Khumbuk, within the premisis of the Middle School near Darrah e Mir. This has been agreed on with the Amir, the Maulawi and the Headmaster. An idea is to involve the pupils in the nursery/plantation work, and possibly involve in awareness building in the classes.
This is a natural first step, since it takes some time to grow trees. Plantation will be an important but integrated part of this project. It can be done even if we fail to get the necessary garuantees from the people. There is a demand for fruit trees, and also trees producing wood for construction and firewood. The work to save the remaining of the conifer forest, which are very highly valied after for construction and firewood, is very important.
For the nursery two people from Khumbuk (from the "locust

people") will come to Peshawar in the end of September for the planned nursery course. The plan is to pick one of them as a foreman for the nursery.

- One person will also come to Peshawar for the Watershed Management course planned by FAO. A teacher from Khumbuk that showed great interest in the problem, Abdul Hai, wanted a job and will be asked. The idea is that we might need an extentionist for the initial stages of the project. Both as a social contact and organizor and in the work with awareness building.
The plan is also to look at similar flood and erosion problems in Yaftal later this autumn and Abdul Qadeem will also attend this course.

- Preparations for a nursery should be done before the winter. This includes working of the soil and making beds ready for sowing in the spring. Some fruit tree seeds will be sowed this autumn.

- During the winter and spring gathering of necessary information in the area (including local interest) and planning of the project has to be done.
Further courses should also be planned during the early winter.

2. OTHER TASKS

2.1. ARA nurseries

ARA has fruit tree nurseries in many provinces with a total of 4 million seedlings. They have a mursery in Taloqan and one in Baharak, Badakhshan. The nursery in Baharak was visited during the trip. It was a nursery of about 10 jerib with only fruit trees. The total number of seedlings was unknown, but they had about 20.000 apple (Rakash baharak, Biruti yellow and green) and almond, pear, apricot (Qaisi), quince and walnut. Only walnut would not be grafted. There are only local varieties, and they will also be grafted by the best local varieties. After one rotation the nursery will be abandoned. The manager is Muallem Habibullah from Badakhshan and the nursery was started this year. There was a little weed in the nursery but not too bad. There was not much activity there when we were there, though.

2.2. Afghanaid

We had a talk to Mohammad Daud, the Afghanaid manager for Badakhshan in Faizabad. They have forest tree trials both in Baharak (1700 m) and in Khosh above Jurm (2100 m). There they have only exotic trees, the seeds brought from Peshawar. These trials were started this year so no results are available yet.

TERMS OF REFERENCE

BADAKHSHAN MISSION 2/1992
AUGUST 1992

Revised August 9, 1992

Timeframe:
August 11 - August 30, 1992.
Return could be delayed until the beginning of September.

Personell: Bjorn Rakstang, leader
Eng. Hakim, translater, engineer
We will go together with John and Nazar.
On the way back I will go with Eng. Hussain, while Eng. Hakim stays in Badakhshan and goes back with John.

Tasks:
Here point 2 from the first ToR will go out. It will remain as a possibility. In addition will come an assessment in Yaftal and Ragh north of Faizabad for future work.

The list of tasks looks like this:

1. Gather data for the starting up of a watershed management / erosion control program. This includes:
   - to gather information in order to be able to set up one or more tree nurseries this autumn,
   - assess the human resources within the locust team for inclusion in the program,
   - assess training requirements,
   - together with Program Coordinator begin the work of gathering data for the designing of the program.

2. Assessment in Yaftal and Ragh for future work.

3. Possibly visit ARA's fruit tree nursery in Taloqan, and their nursery in Baharak if we go trough Chitral back.

4. Possibly monitoring and evaluating of AFRANE forestry program in Teshkan and Darayem.

Bjorns main responsibility will be point 1, and depending on the time needed for point 1, possibly part of 3 and 4.
Eng. Hakims responsibility will be point 2 together with John.

We will have to decide the final sharing of tasks while in the area.

Tentative timescedule:

Aug 11 - 15:

-Travel to Keshim.
-Possibly do purchasing on the way.
-Visit to ARA nursery in Taloqan.

Aug 16 - 23:

-Khumbuk: Start the assessment of tree nursery establishment. Discussion with John about it and start survey of the area.
-Assessment of purchasing nursery inputs in the area an the way up.

Aug 24 - 30:

-Return to Peshawar.
-Possible visit to ARA nursery Baharak.

Peshawar Aug 9, 1992
Bjorn

THIS AND THAT ABOUT KHUMBUK

POPULATION:
Said to be about 3000 families, out of which about 1000 families in the "problem area" between Pul e Kawri and up to Darrah e Mir. It seems that all the villages in Khumbuk (13?) are under one administration (shura under Maulawi Jameel).

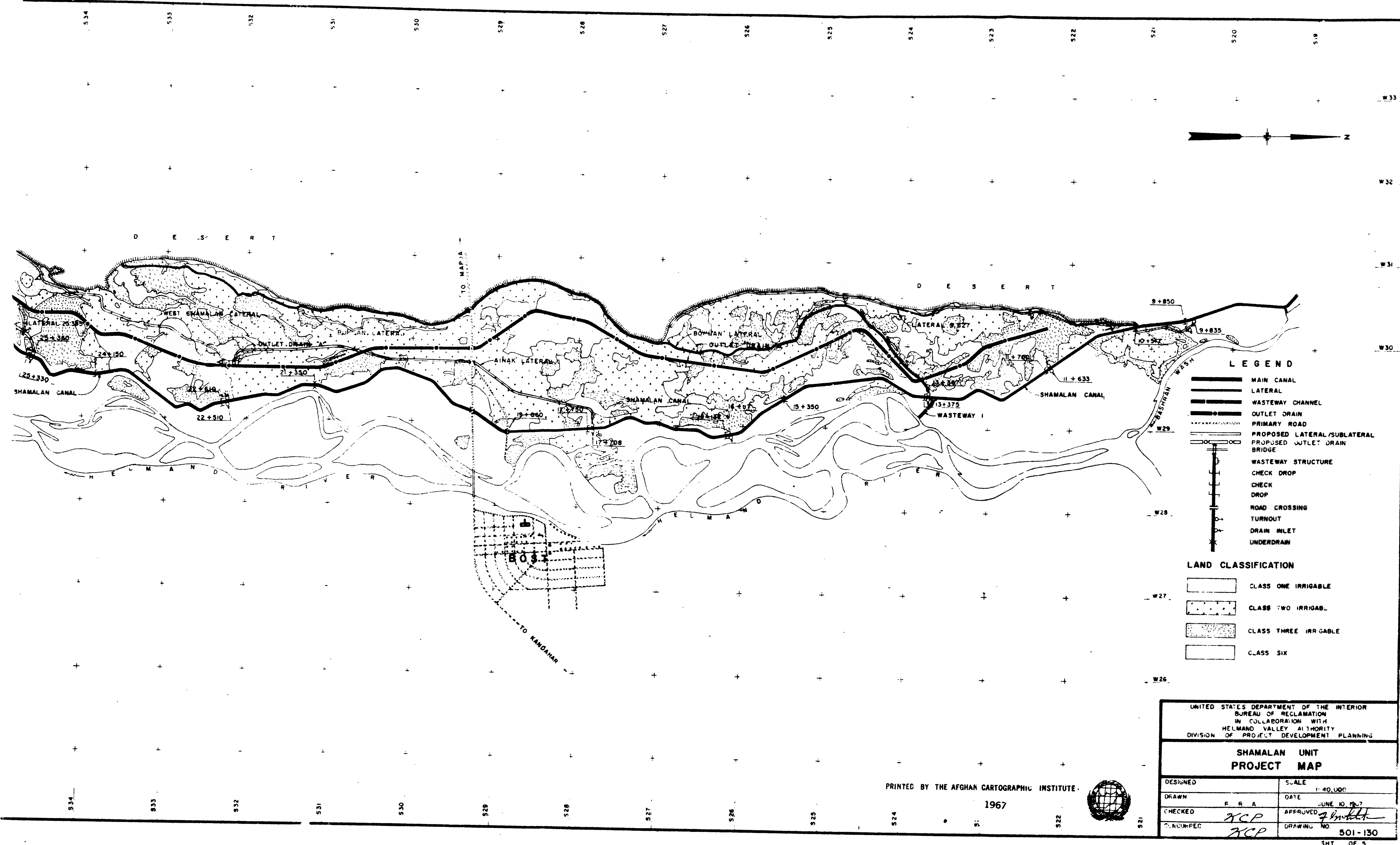
CLIMATE:
Continental temperate caracterized by very hot summers and very cold winters. Up to 40 deg C in summer and down to maybe - 15- 20 deg C in winter. Snowfall from December to February, maybe up to 50 cm snow in the hills during winter, and much less in the valley bottom. Frost occurs from end of October.
The rain occurs mainly during the months of Amal, Saur and Jausa (end og March until end of June. After that is it usually much less rain.

EDUCATION:
The education level in the area is low. There are some teachers, and also one agriculturalist, which currently is working out of the province. There are no engeneers.

INCOME:
The main income is from agriculture and animal husbandry. But for many this is not sufficient and there is a substantial migration to bigger sentra like lower Keshim, Taloqan, etc. for seasonal work.
Some have a little income from dried fruit. Nursery practices like grafting seems to be known, and Khumbuk have several people that do this work for the farmers.

GRAZING CYCLE / SOWING TIME:
The domestic animals (sheep, goats, cattle) are in the high alpine pastures (Ailaq) in the upper valleys during the summer. As autumn comes they go down to the hills above the villages in Khumbuk. As snow comes, they are around the villages and are fed on dried grass and bushes collected during summer. In spring they are moved down to the early pastures in lower Keshim near Dariah e Kowchee, before they again go to the high pastures.
In the hills they plow and sow rainfed wheat during autumn. The wheat is harvested during next summer/autumn. It seems that the fallow period is shorter than ever. Some claimed that there was no fallow at all some places.





DESERT
DESERT
TO MAP 1A
WEST SHAMALAN LATERAL
BOGHAN LATERAL
OUTLET DRAIN "A"
LATERAL 25+385
25+350
24+150
25+330
SHAMALAN CANAL
22+610
22+510
21+350
AINAK LATERAL
19+060
17+750
17+708
SHAMALAN CANAL
16+487
15+350
BOGHAN LATERAL
OUTLET DRAIN
LATERAL 9,227
11+760
11+633
13+580
13+375
WASTEWAY 1
SHAMALAN CANAL
9+850
9+835
10+512
BASHRAN WASH
HELMAND RIVER
HELMAND RIVER
HELMAND
BOST
TO KANDAHAR
LEGEND
MAIN CANAL
LATERAL
WASTEWAY CHANNEL
OUTLET DRAIN
PRIMARY ROAD
PROPOSED LATERAL/SUBLATERAL
PROPOSED OUTLET DRAIN
BRIDGE
WASTEWAY STRUCTURE
CHECK DROP
CHECK
DROP
ROAD CROSSING
TURNOUT
DRAIN INLET
UNDERDRAIN
LAND CLASSIFICATION
CLASS ONE IRRIGABLE
CLASS TWO IRRIGABLE
CLASS THREE IRRIGABLE
CLASS SIX
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1967
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
IN COLLABORATION WITH
HELMAND VALLEY AUTHORITY
DIVISION OF PROJECT DEVELOPMENT PLANNING
SHAMALAN UNIT
PROJECT MAP
DESIGNED
DRAWN F. R. A.
CHECKED KCP
CONCURRED KCP
SCALE 1:40,000
DATE JUNE 10, 1967
APPROVED
DRAWING NO. 501-130
SHT . OF 5

DESERT

HELMAND RIVER

AINAK

WEST SHAMALAN LATERAL

OUTLET DRAIN "A"

LAT. 25.395

26 + 600

27 + 138 LBR

27 + 150

WASTEWAY 2

28 + 725

SHAMALAN CANAL

30 + 084

30 + 100

LATERAL 30.1

31 + 320

DRAIN 1

DRAIN 2

DRAIN 3

OUTLET DRAIN "B"

SUBLATERAL 13.2

W. ST. SHAMALAN LATERAL

13 + 820

OUTLET DRAIN "J"

LATERAL 39.745

SHAMALAN CANAL

36 + 500

LATERAL 38.1

38 + 145

OUTLET DRAIN

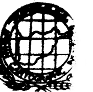
OUTLET DRAIN "L"

SUBLATERAL 3.7

SUBLAT. 7.8

NOTE:
FOR LEGEND SEE SHEET 1 OF 5.

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1957



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SHAMALAN UNIT
PROJECT MAP

DESIGNED	SCALE 1:40,000
DRAWN R. R. A.	DATE JUNE 12, 1967
CHECKED KCP	APPROVED [signature]
CONCURRED KCP	DRAWING NO. 501-131

SHT. 2 OF 5

DESERT

O. DRAIN "F" SPUR

MARJA WW

OUTLET DRAIN "K"

SUBLATERAL 39.42

OUTLET DRAIN F-1

SUBLATERAL 21.24

ZARIST CANAL

OUTLET DRAIN

WEST SHAMALAN CANAL

OUTLET DRAIN "J"

JUMA MARKET

LATERAL 39.46

OUTLET DRAIN

O. DRAIN "F" SPUR I

ZARIST SUBLATERAL

OUTLET DRAIN "F"

LATERAL

SHAMALAN CANAL

LATERAL 43.23

SCHOOL HOUSE

SHAMALAN CANAL

OUTLET DRAIN

50+900

52+000

52+400

53+089

WASTEWAY

OUTLET DRAIN

LATERAL 42

WASTEWAY 3

O. DRAIN "B"

OUTLET DRAIN "D"

HELMAND RIVER

NOTE:

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SHAMALAN UNIT PROJECT MAP	
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SHT. 3 OF 8

DESERT

DESERT

ZARIST DRAIN SPUR 1

ZARIST DRAIN

LATERAL 48.48

O. DRAIN "F" SPUR

MARJA WASTEWAY

ZARIST SUBLATERAL

OUTLET DRAIN "F"

LATERAL 48.48

LATERAL 48.48

LATERAL 63

63+215

SHAMALAN CANAL

OUTLET DRAIN "G"

58+540

58+800

58+740

LATERAL 58.7

LATERAL 57

LATERAL 62

55+878

55+790

OUTLET DRAIN "H"

SHAMALAN CANAL

HELMAND RIVER

HELMAND RIVER

NOTE:
FOR LEGEND SEE SHEET 1 OF 5

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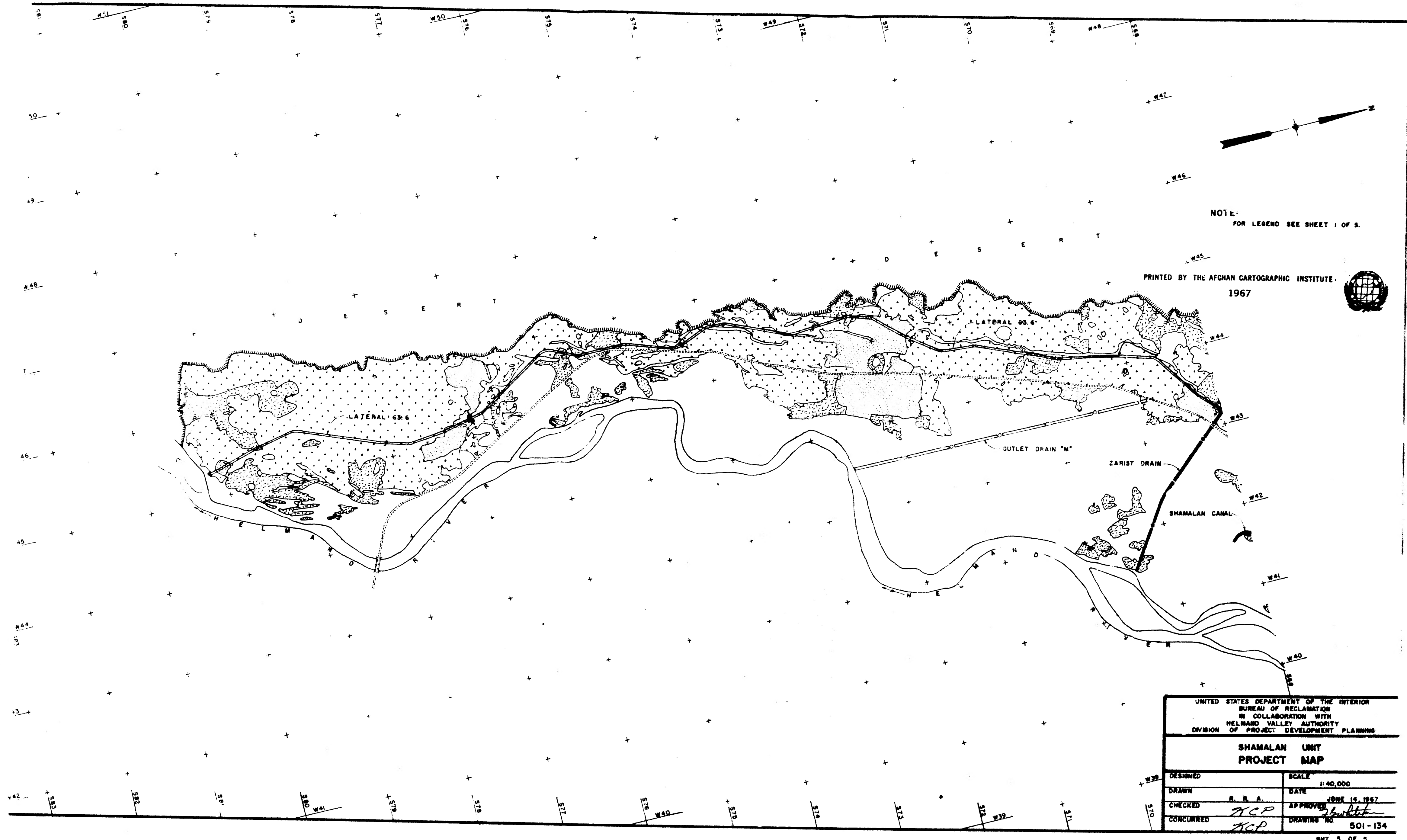
1967

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HELMAND VALLEY AUTHORITY
DIVISION OF PROJECT DEVELOPMENT PLANNING

SHAMALAN UNIT
PROJECT MAP

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SHT. 4 OF 5


NOTE-
FOR LEGEND SEE SHEET 1 OF 5.
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1967
DESERT
DESERT
LATERAL 63.6
LATERAL 65.6
OUTLET DRAIN "M"
ZARIST DRAIN
SHAMALAN CANAL
HELMAND RIVER
HELMAND RIVER
UNITED STATES DEPARTMENT OF THE INTERIOR
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SHAMALAN UNIT
PROJECT MAP
DESIGNED
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SHT. 5 OF 5